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## CLEANUP CRITERIA/DECISION DOCUMENT DATABASE

*EAD has developed a database of guidelines and related information for environmental restoration, decontamination and decommissioning, and other cleanup activities at U.S. Department of Energy (DOE) sites. This Cleanup Criteria/Decision Document (C2D2) database gives DOE managers easy access to information that can help them develop cleanup criteria, identify sites subject to residual risk management, compare remediation costs and response actions, and analyze contaminant-specific clean up levels.*

### ■ PROBLEM/OPPORTUNITY

For the past 50 years, DOE and its predecessor agencies have managed numerous facilities used for research, testing, and production of nuclear weapons. Radioactive and hazardous materials generated by those activities have contaminated many of the facilities and surrounding areas. Some sites have been cleaned up, but DOE has identified at least 50 sites that still require remediation. Good decisions that promote efficient and cost-effective strategies are needed to ensure the success of cleanup programs. Readily accessible information on cleanup guidelines, response actions, technologies, and risks at sites with cleanup actions planned, underway, or completed can help DOE managers plan cleanup operations at the remaining sites.

### ■ APPROACH

EAD has helped design, develop, and implement a relational database management system that contains information on DOE cleanup actions. This C2D2 database can provide DOE managers with concise, readily accessible information for use in developing cleanup guidelines or criteria for remediating contaminated sites. To choose the types of data most appropriate for the database, EAD combined suggestions from potential users with an analysis of source documents.

The C2D2 database contains more than 50 fields in the following categories: site identification; cleanup guidelines by environmental medium and contaminant; regulatory basis; contaminant concentration; cleanup response strategy, and technology; DOE management and regulatory programs; and document reference. For some sites, information is also included on contamination risks and response processes evaluated but not selected. The database also has comment fields with explanatory information to supplement the quantitative data.



*Cleanup is still needed at many DOE sites contaminated with radioactive or hazardous materials.*

EAD identified and reviewed more than 200 records of decision, environmental assessments, and other documents to obtain information for the database. EAD also worked with DOE to install the database on the Internet. The C2D2

web site discusses the objectives and content of the database and explains how it can help DOE Office of Environmental Management organizations in the field. The web site allows users to view and print interactive maps and plots of the data, as well as text descriptions.

## ■ RESULTS

The C2D2 database currently contains information from about 90 DOE sites, representing more than 500 individual cleanup actions. The sites include Environmental Management cleanup sites, Formerly Utilized Sites Remedial Action Program (FUSRAP) sites, Uranium Mill Tailings Remedial Action Program sites, and others. Cleanup criteria for about 300 contaminants are included. The C2D2 database has been used at DOE sites to identify and compare cleanup criteria for specific contaminants and identify remedies on the basis of risk assumptions. The database can also be used to identify sites with residual risk (contamination remaining after cleanup) to aid in stewardship planning, analyze institutional controls, and compare remediation costs. Site managers can expect to save time and money through the ready identification and comparison of cleanup criteria accepted by regulators for similar sites with similar conditions.

## ■ FUTURE

EAD plans to continue updating the database by identifying, reviewing, and incorporating

information from new decision documents. In addition, EAD expects to use it to prepare fact sheets on individual contaminants frequently found at DOE cleanup sites. The fact sheets would help DOE field managers by summarizing information on toxicity, cleanup guidelines developed across DOE sites, the assumptions used to develop the criteria, and other topics useful in developing site cleanup plans. The fact sheets would be available through the C2D2 web site and linked to other DOE web sites. EAD may also use the C2D2 database to analyze such topics as institutional controls, natural attenuation, remediation costs, and trends in guideline concentrations. In addition, EAD may add new types of information to the database, such as that on instrumentation used to determine contaminant concentrations. EAD hopes to expand the C2D2 database to include information from non-DOE sites such as U.S. Department of Defense and EPA-managed sites.

## ■ COMMUNICATION OF RESULTS

The C2D2 database is accessible through the DOE's Office of Environmental Management Home Page (<http://www.em.doe.gov>). It can also be accessed directly at <http://c2d2.em.doe.gov>. This web-based application allows users to view Cleanup Criteria data and generate various reports for on-screen viewing and printing.



*The C2D2 database contains information to help in cleaning up and restoring contaminated sites.*